



WATER RESOURCES RESEARCH GRANT PROPOSAL

Project ID: 2002TX59B

Title: Reduced Phosphorus Concentrations in Feedlot Manure and Runoff

Project Type: Research

Focus Categories: Agriculture, Water Quality, Nutrients

Keywords: runoff, phosphorus reduction

Start Date: 03/01/2002

End Date: 02/01/2003

Federal Funds Requested: \$5,000

Non-Federal Matching Funds Requested: \$10,000

Congressional District: 13th

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Abstract

In the Panhandle Region of North Texas, feedlots produce more than 7 million head of cattle per year and, on any given day, as many as 3.5 million head can be present. These confined animal feeding operations (CAFOs) produce a significant amount of nutrient-rich manure, which is generally applied to pastures surrounding these facilities. Because cattle manure contains high levels of nitrogen- and phosphorus-based compounds, it poses a non-point pollution threat to water quality, especially when runoff occurs. The problem is especially troublesome, since phosphorus is a leading cause of eutrophication in surface waters.

In broad terms, the overall goal of this project is to ascertain whether cattle feeds which are low in phosphorus may lessen the levels of phosphorus in rainfall runoff and thus reduce nonpoint source point pollutant loads. The project will involve measuring the levels of phosphorus in runoff from CAFOs, as well as conditions where rainfall and runoff are simulated. The project will also estimate the environmental benefits that may result from the use of cattle feeds that are low in phosphorus.

This project will be carried out at the US Department of Agriculture/ Texas Agricultural Experiment Station Experimental Feedlot at Bushland, TX. Runoff from this feedlot will be channeled into a flume, from which water samples and flow measurements will be taken. 18 feedpens will be used in this project, to measure the water quality generated from this feedlot.

Anticipated results from this project are to determine whether cattle feeds with 25% less phosphorus than those now commonly used may result in reductions in phosphorus concentrations in cattle manure. If this is the case, results of this project may have significant implications for improved water quality.